

ABSTRACT OF THE DISCLOSURE

5 A method for recognizing an audio sample locates an audio file that most closely matches the
audio sample from a database indexing a large set of original recordings. Each indexed audio
file is represented in the database index by a set of landmark timepoints and associated
fingerprints. Landmarks occur at reproducible locations within the file, while fingerprints
represent features of the signal at or near the landmark timepoints. To perform recognition,
landmarks and fingerprints are computed for the unknown sample and used to retrieve
matching fingerprints from the database. For each file containing matching fingerprints, the
10 landmarks are compared with landmarks of the sample at which the same fingerprints were
computed. If a large number of corresponding landmarks are linearly related, i.e., if
equivalent fingerprints of the sample and retrieved file have the same time evolution, then the
file is identified with the sample. The method can be used for any type of sound or music,
and is particularly effective for audio signals subject to linear and nonlinear distortion such as
15 background noise, compression artifacts, or transmission dropouts. The sample can be
identified in a time proportional to the logarithm of the number of entries in the database;
given sufficient computational power, recognition can be performed in nearly real time as the
sound is being sampled.

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